

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>H04Q</b>	<b>A2</b>	<b>(11) International Publication Number:</b> <b>WO 95/28809</b> <b>(43) International Publication Date:</b> 26 October 1995 (26.10.95)
<b>(21) International Application Number:</b> PCT/FI95/00220 <b>(22) International Filing Date:</b> 13 April 1995 (13.04.95)  <b>(30) Priority Data:</b> 941753 15 April 1994 (15.04.94) FI  <b>(71) Applicant (for all designated States except US):</b> TELECOM FINLAND OY [FI/FI]; Sturenkatu 16, FIN-00510 Helsinki (FI).  <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only):</b> LEPPÄNEN, Osmo [FI/FI]; Karjusaarenkatu 58 as. 3, FIN-15240 Lahti (FI).  <b>(74) Agent:</b> LAHTI, Heikki; Telecom Finland Oy, Legal Affairs, P.O. Box 106, FIN-00511 Helsinki (FI).		<b>(81) Designated States:</b> AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).  <b>Published</b> <i>In English translation (filed in Finnish). Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> METHOD FOR CLASSIFYING CALLS FROM A MOBILE SUBSCRIPTION  <b>(57) Abstract</b>  The invention relates to a method for classifying mobile station calls, in which method the mobile station subscriber uses predetermined selection prefixes. According to them the station calls can be separated from each other in compliance with the data of the invoicing record.		

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

## METHOD FOR CLASSIFYING CALLS FROM A MOBILE SUBSCRIPTION

The invention relates to a method for classifying calls from a mobile subscription.

- 5 The invoicing system of telephone exchanges marks the selection made by the subscriber as a B-number to the invoicing record of each telephone call. When the selection is predetermined, e.g. a selection beginning with 9, 0 or 1, normal analyses are performed in the exchange and the call is coupled to the receiver and necessary information is marked to the invoicing record, as is well-known.
- 10 By the same mobile station are phoned calls of different types, e.g. private or company calls or e.g. calls, that the subscriber would like to group to different cost points. Separation of these calls has not before been possible.
- 15 In order to solve this problem a new method has been developed, by which a decisive improvement will be obtained for the above-mentioned problem. For this the method according to the invention is characterised by, that has been presented in the characterisation part of the claims 1 and 10.
- 20 By the invention it is possible to group the calls, phoned from the same mobile station and using the same predetermined prefix, into different cost groups at the invoice by the way selected with the prefix. This enables the separation of the private and company calls phoned from the same telephone exchange. The subscriber can also divide these calls into different cost groups according to his desire, e.g. a consultant, who deals with the affairs of
- 25 different customers, can directly divide the telephone costs in a customer-related manner.

The object of the invention is a method for classification of the calls of a mobile station in a mobile station system comprising mobile stations, at least one base station provided with communication via a radio channel to the mobile station and having a limited operational

2

range, at least one mobile station centre equipped for mobile station services and being able to be in interaction with telephone centres or exchanges, in which method a call is made from a predetermined mobile station subscription with an in advance selected beginning (prefix) to another mobile station, in which inter alia the selection is fed to the invoice data.

5

When a call with a predetermined prefix is dialled from a predetermined mobile station subscription to another station, the predetermined beginning (=prefix) is removed in the exchange before the routing and the numbers corresponding the normal selection are sent to other networks and at the same time according to the selection of the predetermined beginning (=prefix) the information concerning the selection or the B-number and the prefix is also fed to the invoicing data. In the invoicing record there is naturally also other information needed for the invoicing of the mobile station subscriber, as the subscriber number, calling time of the telephone etc. By the predetermined prefix of the selection to be removed when the call is coupled in the mobile station centre, the predetermined calls of the predetermined mobile subscription are separated from each other in the invoicing data, or by these prefixes the calls made by the station are separated from the calls, which do not have this prefix, for invoicing.

As a predetermined selection can be chosen a prefix for instance for each system 150 ... 20 159, e.g. 800 ... 809 GSM- (Global System for Mobile Communications) or for example \*150 ... \*159 NMT- (Nordic Mobile Telephone) system. These predetermined prefixes separate the selection from the normal number selection.

When subscribers, who do not have any service quality, i.e. the right to use a prefix, utilise 25 it, the calls are directed as normal selections and the invoicing and customer management system is guided to handle these subscriber calls as if they had no prefix. The invoicing and customer management system has a register including the customer data, as the information concerning the right to use the prefix. According to the known protocol the data is verified in the system and the invoicing data is outputted accordingly.

When transfer is made to the intelligent networks (IN), directions are given to the Intelligence Network IN -centre to prevent the calls, by which have been used a predetermined prefix and which have been made by the subscribers, who do not have the right to use the  
5 prefix.

According to the invention it is possible to group the phoned calls for example as calls of different enterprises or as private or company calls. By the first part of the number can be referred to private calls, company calls or one or many cost groups wanted by the sub-  
10 scribe.

A further aspect of the invention comprises among other things, that from a predetermined mobile subscription company calls are phoned with the predetermined selection beginning and private calls without the predetermined selection beginning or vice versa.  
15

From the predetermined mobile station subscription a call can be made to the desired subscriber number with the predetermined selection beginning, whereby this call is separated by the number selection beginning from other calls in the invoicing data.

20 The receiver of the call can be another mobile station sub-ascription or other telephone sub-  
scription, e.g. a wire telephone.

The invoicing and customer management system divides the calls into different cost groups based on the prefixes defined by the subscriber, and outputs to the invoice the calls of each  
25 cost group as the total sum or separately, itemised by the services. Thus also private and company calls can be separately counted, when at least before some calls has been used the prefix according to the invention.

## CLAIMS

1. Method for classifying calls from a mobile station in a mobile station system, comprising mobile stations, at least one base station with limited operational range to maintain radio  
5 connection with mobile stations, and at least one mobile station centre to transmit telecommunications in a mobile station network and from the mobile station network to other telecommunications networks or vice versa, characterised in that from the mobile station subscription is made a contact by the selection with a predetermined prefix and normal choice to another mobile station subscription or another subscription of a telecommunications net-  
10 work, and that said predetermined prefix of the selection is fed to the invoicing data.
2. Method according to claim 1, characterised in that in the telephone exchange said predetermined prefix is identified and removed before the routing, that the call is routed into said network according to the numbers corresponding the normal selection, and that to the in-  
15 voicing data is fed in addition to the normal selection also said predetermined prefix.
3. Method according to claim 1 or 2, characterised in that from the predetermined mobile station subscription company calls are dialled with the predetermined selection prefix and private calls without the predetermined selection prefix or vice versa.  
20
4. Method according to any of the preceding claims, characterised in that a call is made from the predetermined mobile subscription connection to the desired subscriber number by a selection with the predetermined prefix, whereby this selection is separated by the number selection prefix from other calls in the invoicing record.  
25
5. Method according to any of the preceding claims, characterised in that by the number prefix it is referred to private calls, company calls or calls of a certain subscriber.

6. Method according to any of the preceding claim, **characterised** in that in the invoicing centre it is checked the right of the subscriber to use the predetermined prefix and, if the subscriber is not entitled to use the prefix, the prefix qualities are removed.
- 5 7. Method according to any of the preceding claims, **characterised** in that when an intelligent network (IN) is used, in the IN-centre are prevented the calls, in which have been used a predetermined prefix, of the sub-scribers, who are not entitled to use the prefix.
8. Method according to any of the preceding claims, **characterised** in that the receiver of  
10 the call is a mobile station subscription or another telephone subscription.
9. Method according to claim 1, **characterised** in that the beginning of the selection is removed in the call formation, but is included in the invoicing.
- 15 10. Method for classifying calls from a mobile station in a mobile station system, comprising mobile stations, at least one base station with limited operational range to maintain radio connection with mobile stations, and at least one mobile station centre to transmit telecommunications in a mobile network and from the mobile network to other telecommunications networks or vice versa, **characterised** in that a connection is made from the mobile sub-  
20 scription by a selection with a predetermined prefix and normal dial to another mobile subscription or another subscription of a telecommunications network, and that before the routing of the call the predetermined calls of the predetermined mobile station subscription are separated from each other in the invoicing data by the selection prefix to be removed and fed to the invoicing data.